3440
Suppression
Biological Control
R4-80-6

Larch Casebearer
Payette and Boise National Forests

PREPARED BY:

Arland C. Valcarce
Entomologist

Carol Ann Lowe
Entomologist

APPROVED BY:

MAX M. OLLIEU
Director
Forest Insect and Disease Management

Forest Insect and Disease Management
State and Private Forestry
Intermountain Region
USDA Forest Service
324-25th Street
Ogden, UT 84401

BIOLOGICAL CONTROL-LARCH CASEBEARER RELEASE OF CHRYSOCHARIS LARICINELLAE IN THE INTERMOUNTAIN REGION

1980

INTRODUCTION

Parasites of the larch casebearer, Coleophora laricella (Hübner) offer hope for biologically reducing populations of and damage by this defoliator. Cooperative studies have been initiated by Research (PNW and INT) and FI&DM (R-4) to evaluate effectiveness of Chrysocharis laricellae (Ratz.)*, a tiny wasp parasite of the casebearer (Valcarce, '78, '79, '80).

Following is a brief report documenting introduction of the parasite into casebearer infested western larch, Larix occidentalis, stands of Region 4.

COLLECTION, RELEASE AND ESTIMATION OF NUMBERS OF PARASITES RELEASED

April 9, 1980 - Origin of parasites was a larch stand in northeastern Washington on the Kettle Falls Ranger District, Colville National Forest (Figure 1). Larch saplings, heavily infested with casebearer, were felled with pruning saws, all limbs removed with hand pruners, cut into lengths, and placed in cardboard boxes for transportation.

April 10, 1980 - Releases were made within larch casebearer infested sapling and pole-size stands of larch at five locations in Region 4 (Figure 3). Larch branches containing the parasitized overwintering third instar stage larvae of the larch casebearer were placed on branches of infested larch, or on those of nearby non-host trees (Figure 2).

Subsamples of the branches put out were reared for parasites in the laboratory to estimate the number of Chrysocharis released. To Facilitate this, a unit length of three linear feet of twig was measured and used as a standard. Measurements included length of branch and length of all attached twigs. At each release location 100 of the three-foot units were measured and placed in a pile. As each box of twigs was emptied an estimate of the number of units contained therein was made based upon a comparison with the 100-unit pile and recorded.

To determine numbers of parasites on branches, twigs to which the parasitized larch casebearer larvae were attached were placed in rearing chambers (plastic petri plates or glass plates sealed with parafilm) at room temperature on April 11. Casebearer larvae became very active by April 14; first parasite emergence was observed on April 21

* Hymenoptera, Eulophidae

and was essentially completed by April 24.

Table 1 shows measurements from the reared samples converted to total parasite release estimates by location. As shown, a total of 105,726 Chrysocharis were released as calculated from the reared sample of 1,214.

Parasite collection and releases were conducted under excellent (moist-cool) conditions for parasite survival. Data were documented and filed on parasite release forms.

FUTURE EFFORTS

Assessments of releases will be accomplished over the next several years along with planned casebearer evaluation and impact surveys.

ACKNOWLEDGEMENTS

Our appreciation is extended to: Leon Pettinger, Region 6, for his cooperation locating and furnishing biological information on the collection site and physically assisting us; coordinating assistance given by Roger Ryan, PNW, and Rick Johnsey, Washington State DNR; and John Wilson, TMA, Kettle Falls Ranger District, for providing the collection site.

Table 1. Region 4 field releases of the larch casebearer parasite Chrysocharis laricinellae (Ratz.), April 1980.

Location		#Twig Units* Reared	#Chrysocharis Reared	#Twig Units* Released	#Chrysocharis Released	#Chrysocharis Per Unit*	Percent Parasitism In Sample
Payette NF -	Lost Valley Rd.	9.75	204	890	18,618	20.92	44
	Lower Goose Cr.	26.86	299	2,270	25,265	11.13	10
	Little Goose Cr.	23.67	261	2,760	30,442	11.03	23
Boise NF	Smith's Ferry	27.36	236	1,550	13,376	8.63	13
	Cascade	20.81	214	1,750	18,025	10.3	18
	Totals	108.45	1,214	9,290	105,726	Ave. 12.4	22

*A unit equals an arbitrary length of 3 linear feet of branch and twigs.

REFERENCES

Valcarce, A. C.
1978. Biological evaluation, larch casebearer, Payette and Boise National Forests, 1977. USDA-Forest Service, State and Private Forestry, Rep. R-4, 78-8, 5 p. Ogden, UT.

Valcarce, A. C.
1979. Biological Control - Larch casebearer, 1978. Release of Agathis pumila in R-4. USDA-Forest Service Rep. 4 p. Ogden, UT.

Valcarce, A. C.
1980. Biological evaluation, larch casebearer, Payette and Boise National Forests, 1979. USDA-Forest Service, State and Private Forestry, Rep. R-4, 80-2, 8 p. Ogden, UT.